

WE CLAIM THE FOLLOWING:

1. A method for determining the density variations of a material on a multi-layer printed circuit board, the method comprising:

forming a grid system on each layer in the multi-layer printed circuit board;

determining the area occupied by the material in each grid element, of the grid system, on each of the layers in the multi-layer printed circuit board; and

computing a measure of the density from the area of the material, in said each grid element, on the multi-layer printed circuit board.

2. The method according to claim 1, wherein the material includes copper (Cu).

3. The method according to claim 1, wherein said each grid element is rectangular.

4. The method according to claim 1, further including the steps of:

adding the area occupied by the material in the each grid element in neighbor layers to obtain a sum area for said grid element, said each grid element having the same co-ordinates in all the layers; and

determining an average of the sum area over all grid elements.

5. The method according to claim 4, further including the step of dividing the sum area for the each grid element with the average of the sum area to compute the measure of the density of the material for said grid.

6. The method according to claim 5, further including the step of generating a contour map showing the variation in the measure of the density of the material on the multi-layer printed circuit board.

7. The method according to claim 4, further including the step of predicting a defect in the multi-layer printed circuit board from the measure of the density of the material.

8. A method for predicting a defect on a multi-layer printed circuit board, the method comprising:

forming a grid system on each layer in the multi-layer printed circuit board;

determining the area occupied by the material in each grid element, of the grid system, on each of the layers in the multi-layer printed circuit board;

computing a measure of the density from the area of the material, in each grid element, on the multi-layer printed circuit board;

predicting a defect in the multi-layer printed circuit board from the measure of the density of the material.

9. The method according to claim 8, further including the steps of:

adding the area occupied by the material in the each grid element in neighbor layers to obtain a sum area for said grid element, said each grid element having the same co-ordinates in all the layers; and

determining an average of the sum area over all grid elements.

10. The method according to claim 9, further including the step of dividing the sum area for the each grid element with the average of the sum area to compute the measure of the density of the material for said grid.

11. The method according to claim 10, further including the step of generating a contour map showing the variation in the measure of the density of the material on the multi-layer printed circuit board.

12. The method according to claim 9, wherein the material includes copper (Cu).

13. The method according to claim 9, wherein said each grid element is rectangular.

14. A system for determining the density variations of a material on a multi-layer printed circuit board, the system comprising:

means for forming a grid system on each layer in the multi-layer printed circuit board;

means for determining the area occupied by the material in each grid element, of the grid system, on each of the layers in the multi-layer printed circuit board; and

means for computing a measure of the density from the area of the material, in said each grid element, on the multi-layer printed circuit board.

15. The system according to claim 14, wherein the material includes copper (Cu).

16. The system according to claim 14, wherein said each grid element is rectangular.

17. The system according to claim 14, further including:

means for adding the area occupied by the material in the each grid element in neighbor layers to obtain a sum area for said grid element, said each grid element having the same co-ordinates in all the layers; and

means for determining an average of the sum area over all grid elements.

18. The system according to claim 17, further including means for dividing the sum area for the each grid element with the average of the sum area to compute the measure of the density of the material for said grid.

19. The system according to claim 18, further including means for generating a contour map showing the variation in the measure of the density of the material on the multi-layer printed circuit board.

20. The system according to claim 17, further including means for predicting a defect in the multi-layer printed circuit board from the measure of the density of the material.